**Program of the Fourteenth Symposium on Antarctic Meteorites held at the National Institute of Polar Research, Tokyo, June 6–8, 1989**

1. The meteorite concentration on the bare ice surface around the Sør Rondane Mountains, Antarctica. K. YANAI and the JARE-29 Asuka Party.
2. Search for dust bands from blue ice fields near the Sør Rondane Mountains, Antarctica. H. NARAOKA, S. FUJITA and K. YANAI.
3. The uranium-series age of Yamato K-26 ice. E. L. FIREMAN.
4. Exposure ages of rocks from the Sør Rondane Mountains, Antarctica. K. NISHIIZUMI, J. KLEIN, D. FINK, R. MIDDLETON, C. P. KOHL and J. R. ARNOLD.
5. Second consortium reports of the Yamato-86032 lunar meteorite sample and a mineralogical study. H. TAKEDA, H. MORI, H. KOJIMA and K. YANAI.
6. Chemistry of Yamato-86032 lunar meteorite. T. FUKUOKA, J. C. LAUL and R. A. SCHMITT.
7. Volatile/mobile trace elements in lunar meteorite Yamato-86032. M. S. WANG and M. E. LIPSCHUTZ.
8. Petrological study of the Y-74359 and Y-74360 unique meteorites. Y. IKEDA.
9. Belgica-7904: A new kind of carbonaceous chondrite from Antarctica; mineralogy and petrography. K. TOMEOKA.
10. Compositional heterogeneity of alteration products in B-7904 chondrite. S. MATSUNAMI, H. NISHIMURA and H. TAKESHI.
11. Mineralogical evidence of heating events in carbonaceous chondrites, Y-82162 and Y-86720. J. AKAI
12. Mineralogy and petrology of Yamato-86720 and Belgica-7904. M. ZOLENSKY, R. BARRETT and M. PRINZ.
13. Chemical characteristics and their inference to classification of Yamato-82162 and -86720 meteorites. K. YAMAMOTO and N. NAKAMURA.
14. Origin of PCP. H. KOJIMA and K. YANAI.
15. Consortium report on carbonaceous chondrites from Queen Maud Land, Antarctica: Glimpses of new parents. R. L. PAUL and M. E. LIPSCHUTZ.
16. A new chondrite grouplet: Allan Hills 85151 and Carlisle Lakes 001. G. W. KALLEMEYN.
17. Chemical compositions of some primitive carbonaceous chondrites from Antarctica. M. EBIHARA and T. SHINONAGA.
18. On the relation of carbon and nitrogen contents in carbonaceous chondrites. T. YAMAMOTO and T. KOZASA.
19. Stable isotope and abundance measurements of solvent extractable compounds in Murchison. I. A. FRANCHI, R. A. EXLEY, I. GILMOUR and C. T. PILLINGER.
20. Purines in Antarctic carbonaceous chondrites. A. SHIMOYAMA, S. HAGISHITA and K. HARADA.
21. TG-MS analysis of insoluble organic matter in Antarctic carbonaceous chondrites. M. KOMIYA, A. SHIMOYAMA, H. NARAOKA and K. HARADA.
22. Studies of carbonaceous residues obtained from carbonaceous chondrites by acid treatments. T. MURAE, A. MASUDA and T. TAKAHASHI.
23. Homogenization process in pyroxene of ordinary chondrites. T. FUJITA, A. TSUCHIYAMA and M. KITAMURA.
24. Variations of compositional changes of pyroxenes and olivine in L chondrites: Evaluation of "petrologic type". T. NOGUCHI.
26. Mineralogical and spectroscopic studies of primitive achondrites with reference to the S-type asteroids. T. HIROI, J. SAITO and H. TAKEDA.
27. Mineralogical study of the Yamato-8448 ureilite and some thoughts on the origin of ureilite. J. SAITO, T. NAKAMURA and H. TAKEDA.

28. Mineralogy of Yamato-791466 and -791438 achondrites and the evolution of materials in the HED parent body. H. TAKEDA, K. SAEKI and T. TAGAI.
29. Eucritic enclaves in the Mt. Padbury and Vaca Muerta mesosiderites. Y. IKEDA, M. EBIHARA and M. PRINZ.
30. Densities of experimental reproduced diogenitic pyroxenes and eucritic melts. H. ISOBE.
31. High dislocation densities of relict minerals in chondrules. S. WATANABE and M. KITAMURA.
32. Shock-melting origin of chondrules. M. KITAMURA, A. TSUCHIYAMA, S. WATANABE, Y. SYONO and K. FUKUOKA.
33. Mechanical and morphological characterization of shock effects in Antarctic meteorites (II)—Hardness & grain shape analysis of metallic particles—. Y. HORII, N. FUJII and H. TAKEDA.
34. Plagioclase compositions of Yamato-691 chondrite. Y. MIURA and Y. NANAURA.
35. Vaporization experiments in the system plagioclase-hydrogen: 2. composition of the gas and residue. H. NAGAHARA, I. KUSHIRO and K. TOMEOKA.
36. Experimental and theoretical studies of solid-gas equilibria and their implication to redox reactions in the nebula. A. TSUCHIYAMA.
37. The magnesium isotope abundance of silicates produced from gas-condensation furnace. C. UYEDA, J. OKANO and A. TSUCHIYAMA.
38. Rb-Sr age of diogenite younger than that of eucrite. K. TAKAHASHI, H. SHIMIZU and A. MASUDA.
39. Alteration of Antarctic meteorites and their anomalous abundances of Halogens. T. SHINONAGA, M. EBIHARA, H. NAKAHARA, A. KONDOH, M. HONDA, M. MIYAMOTO and H. KOJIMA.
40. Neutron activation analyses for rare earth elements in meteorites and others. S. YONEDA, H. MIHARA, H. NAGAI and M. HONDA.
41. Further characterization of fractionated and unfractionated REE and alkali metal abundances in the Allende (CV3) chondrules—part 1—. H. MATSUDA and N. NAKAMURA.
42. Further characterization of fractionated and unfractionated REE and alkali metal abundances in the Allende (CV3) chondrules (II). N. NAKAMURA and H. MATSUDA.
43. Be-10 and Al-26 in metal and stone phases of meteorites. H. NAGAI, M. HONDA, M. IMAMURA, K. KOBAYASHI and H. OHASHI.
44. Noble gas isotopic compositions of nine chondrites from Antarctica. K. NAGAO, Y. MIURA and T. KOH.
45. 40Ar-39Ar age and noble gas isotopes of a clast (H) in a shocked L6 chondrite Y-75097. I. KANEOKA, N. TAKAOKA and K. YANAI.
46. Experimental procedures of measuring nitrogen abundances and isotopes, and a preliminary results for LL chondrites. K. HASHIZUME and N. SUGIURA.
47. Ne enrichment in silica glasses produced by shock and in obsidians. K. MATSUBARA, H. YAJIMA, K. YAMAMOTO and J. MATSUDA.
48. Noble gases in ureilite—Constraint on origin—. N. TAKAOKA.
49. Comparison of the previous C-14 terrestrial ages. Y. MIURA and R. BEUKENS.
50. Terrestrial 81Kr-Kr ages of Antarctic eucrites. K. NAGAO and A. OGATA.
51. Terrestrial age of Antarctic meteorite measured by thermoluminescence of fusion crust. A. NAKANISHI, H. ONO and S. MIONO.
52. Thermoluminescence study of ordinary chondrites by TL spatial distribution readout system. K. NINAGAWA.
53. Diffusion of noble gases in diamonds. H. YAJIMA and J. MATSUDA.
54. Isotopic composition of rare gases in vapour growth diamond. K. FUKUNAGA, J. MATSUDA and K. ITO.
55. Fractionation of noble gases in the carbon material synthesized by glow-discharge CVD. K. SUZUKI and J. MATSUDA.
56. Detailed measurement of potassium 40 electron capture decay, and the compressional and chemical effect to its decay constant. M. KUSABA, M. IMAMURA, K. YAGI, M. OZIMA, S.

WATANABE and H. HIYAGON.
57. 244Pu fissiogenic Xe in the mantle. M. OZIMA, S. AZUMA and H. HIYAGON.
58. Investigation of high 3He/4He ratio in deep-sea sediments. J. MATSUDA, M. MUROTA and K. NAGAO.
59. Chemical characteristics of magnetic, stony spherules from deep-sea sediments. K. MISAWA, K. YAMAKOSHI, K. NOGAMI, K. YAMAMOTO and N. NAKAMURA.
61. End-Cretaceous event—Is it due to an encouter with a giant molecular cloud? S. YABUSHITA.
62. Small crater and impactite found in Toyama Prefecture, Japan. J. AKAI and T. KANNO.
63. Carbonates in some Antarctic meteorites: Infrared spectroscopy. M. MIYAMOTO.
64. Micromorphometry of several Yamato meteorites. M. ZBIK.
65. Observation of Allende and Antarctic meteorites by monochromatic X-ray CT based on synchrotron radiation. T. HIRANO, M. FUNAKI, T. NAGATA, I. TAGUCHI, H. HAMADA, K. USAMI and K. HAYAKAWA.
66. Paleomagnetic intensity studies on carbonaceous chondrites. T. NAGATA and M. FUNAKI.
67. Magnetic properties of the alloy mixtures simulated to Y-74115 and DRPA78007. H. NAGAI, K. MOMOSE and M. FUNAKI.
68. Magnetic and mössbauer properties of Cherokee Spring LL6 chondrite. J. DANON, M. FUNAKI, T. NAGATA and I. TAGUCHI.

Special Lecture
69. Comparison between Antarctic and non Antarctic meteorite populations. M. E. LIPSCHUTZ (Invited Speaker, Professor, Purdue University).
Comment with reference to Yamato achondrite. H. TAKEDA.

Abstract only
70. Y-86032 and ALHA-81005—Carbon and nitrogen stable isotope analyses of two lunar meteorites. M. M. GRADY and C. T. PILLINGER.
71. Oxygen isotopic compositions of unique Antarctic meteorites. T. K. MAYEDA and R. N. CLAYTON.
72. Mineral chemistry, trace elements and oxygen isotopes of coarse-grained refractory inclusions from the Groznaij carbonaceous chondrite. A. A. ULYANOV, N. N. KONONKOVA, V. I. USTINOV and G. M. KOLESOV.
73. Meteorite breakup at atmospheric entry: What can we learn from fragments? B. LANG and K. FRANASZCZUK.
74. Geoscientific significance of the Lonar impact event, India. V. K. NAYAK.
75. Formation processes of the K-T boundary samples from density variation of quartz minerals. Y. MIURA and M. IMAI.

25. Allende III: A SEM study of its glassy phases. G. SANCHEZ-RUBIO, A. M. REYES-SALAS and A. NIETO.
60. Nuclear explosion glasses and tektite. W. LIN.